

Table A-36. Full-time equivalent (FTE) R&D scientists and engineers per 1,000 employees in companies that performed industrial R&D in the U.S., by industry and size of company: 1997–2000

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Industry and size of company	NAICS codes	1997	1998	1999 ¹	2000
Distribution by industry:					
All industries ²	21–23, 31–33, 42, 44–81	47	55	57	59
Manufacturing	31–33	--	--	55	55
Food	311	8	10	8	6
Beverage and tobacco products	312 (S)	19	17	25	23
Textiles, apparel, and leather	313–16	9	8	31	9
Wood products	321 (S)	8	7	10 (S)	18
Paper, printing and support activities	322, 323 (S)	20 (S)	18 (S)	20 (S)	19
Petroleum and coal products	324	30	29	26 (S)	15
Chemicals	325	89	91	84	98
Basic chemicals	3251	68	89	60	71
Resin, synthetic rubber, fibers, and filament	3252	53	59	65	77
Pharmaceuticals and medicines	3254	144	141	133	136
Other chemicals	325 (minus 3251–52, 3254) (S)	65	60 (S)	61 (S)	77
Plastics and rubber products	326	22	22	24	24
Nonmetallic mineral products	327 (S)	24 (S)	18	15	30
Primary metals	331 (S)	13 (S)	12 (S)	13 (S)	13
Fabricated metal products	332	19	17	13	15
Machinery	333	52	53	60	69
Computer and electronic products	334	137	152 (S)	147 (S)	152
Computers and peripheral equipment	3341	168	156	127	135
Communications equipment	3342	160 (S)	235 (S)	217 (S)	195
Semiconductor and other electronic components	3344 (S)	129 (S)	119 (S)	141 (S)	132
Navigational, measuring, electromedical, and control instruments	3345 (S)	122 (S)	125	133	146
Other computer and electronic products	334 (minus 3341–42, 3344–45)	128	114	112	86
Electrical equipment, appliances, and components	335	50	31	37	44
Transportation equipment	336 (S)	68	58	65	53
Motor vehicles, trailers, and parts	3361–63	56	46	64	60
Aerospace products and parts	3364 (S)	90 (S)	83 (S)	72	43
Other transportation equipment	336 (minus 3361–64)	22	21	40 (S)	38
Furniture and related products	337	13 (S)	12	10 (S)	9
Miscellaneous manufacturing	339	43	41	43	50
Medical equipment and supplies	3391 (S)	58 (S)	53	53	58
Other miscellaneous manufacturing	339 (minus 3391)	21	26	29	35
Other manufacturing ³	31–33 (minus 311–16, 321–27, 331–37, 339)	10	(D)	--	--
Small manufacturing companies ⁴	Fewer than 50 employees	80	106	107	37

See explanatory information and SOURCE at end of table.

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Distribution by industry:					
Nonmanufacturing	21–23, 42, 44–81	--	--	60	65
Mining, extraction, and support activities.....	21	27	27	16	29
Utilities.....	22	2	2	2	1
Construction.....	23	25	85	52	8
Trade.....	42, 44, 45	73	60	92	76
Transportation and warehousing.....	48, 49	2	1	1	3
Information.....	51	46	76	68	75
Publishing.....	511	156	197	230	248
Newspaper, periodical, book, and database.....	5111	11	22	26	31
Software.....	5112	309	310	344	358
Broadcasting and telecommunications.....	513 (S)	12 (S)	18 (S)	14 (S)	12
Radio and television broadcasting.....	5131	(D)	(D)	(D)	(D)
Telecommunications.....	5133 (S)	8 (S)	12	(D)	(D)
Other broadcasting and telecommunications....	513 (minus 5131, 5133)	(D)	(D)	(D)	356
Other information.....	51 (minus 511, 513)	70	101	114	95
Finance, insurance, and real estate.....	52, 53	20	18	20	25
Professional, scientific, and technical services.....	54	158	144	173	201
Architectural, engineering, and related services...	5413	141	156	180 (S)	207
Computer systems design and related services...	5415	167	147	162	174
Scientific R&D services.....	5417	303	324	348	366
Other professional, scientific, and technical services.....	54 (minus 5413, 5415, 5417)	(S) 48	32	40	61
Management of companies and enterprises.....	55 (S)	212	302	65	110
Health care services.....	621–23	42	47	84	20
Other nonmanufacturing ³	56, 61, 624, 71, 72, 81	6	12	7	8
Small nonmanufacturing companies ⁴	Fewer than 15 employees	286	254	173	485

See explanatory information and SOURCE at end of table.

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Industry and size of company	NAICS codes	1997	1998	1999 ¹	2000
Distribution by size of company: [Number of employees]					
Total.....	(na)	47	55	57	59
5 to 24.....	(na)	203	229	249	295
25 to 49.....	(na)	129	123	144	179
50 to 99.....	(na)	114	111	163	111
100 to 249.....	(na)	77	91	81	94
250 to 499.....	(na)	87	68	68	79
500 to 999.....	(na)	52	56	82	92
1,000 to 4,999.....	(na)	48	50	58	49
5,000 to 9,999.....	(na)	45	50	58 (S)	59
10,000 to 24,999.....	(na)	37	42	37	56
25,000 or more.....	(na) (S)	39	47	45 (S)	46

¹ Some statistics for 1999 have been revised since originally published.

² The totals for "all industries" prior to 1999 are identical to corresponding totals previously published using the Standard Industrial Classification (SIC) system. Also, pre-1999 detail published using the North American Industry Classification System (NAICS) may not add to the totals. See the 'NOTE' below.

³ Manufacturing companies in the 1997 and 1998 samples that could not be classified with a NAICS code are included in "other manufacturing;" nonmanufacturing companies that could not be classified with a NAICS code are included in "other nonmanufacturing."

⁴ The frame from which the statistical sample was selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with employment of 50 or more were included in the large company partition. In the nonmanufacturing sector, companies with employment of 15 or more were included in the large company partition. Companies in the respective sectors with employment below these values, but with at least 5 employees, were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, detailed industry statistics were possible only from the large company partition; detailed industry statistics from the small company partition were not possible. Statistics from the small company partition are shown separately and are included in manufacturing, nonmanufacturing, and all industries totals. For more information, see "frame creation" and "sample selection" in the technical notes in Section B.

KEY: (D) = Data have been withheld to avoid disclosing operations of individual companies.
(S) = Indicates imputation of more than 50 percent.
(--) = Indicates data not collected.
(na) = Not applicable.

NOTES: Starting with the 1999 survey, estimates are based on the North American Industry Classification System (NAICS). In prior years, estimates were based on the Standard Industrial Classification (SIC) system. For this table, companies in the 1997 and 1998 surveys were assigned NAICS industry codes based on their SIC industry codes. Consequently, the estimates for 1997 and 1998 in this table are not necessarily representative of the NAICS categories of industries in those years. They are included for comparison purposes only.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2000